

Application No. 09/977,339

REMARKS

Claims 1-14 are pending in this application. By this Supplemental Amendment, claims 1 and 7 are amended. No new matter is added. Reconsideration in view of the above amendments and following remarks is respectfully requested.

I. The Claims Define Allowable Subject Matter

The Office Action rejects claims 1-12 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,157,411 to Takeoshi et al. in view of U.S. Patent No. 6,126,273 to Ban Vooren et al. This rejection is respectfully traversed.

The applied art does not teach, disclose or suggest that the discharge quantity and flight speed of the functional liquid discharged from the nozzles is regulated for each group by voltage level applied to piezoelectric elements corresponding to the nozzles such that the impact position of the functional liquid on the substrate becomes hard to be displaced even when moving the mounting table at higher speed, as claimed in claim 1 and similarly claimed in claim 7.

Additionally, the applied art does not teach, disclose or even suggest that at least two or more of the groups have a voltage level which is applied to the piezoelectric elements that is different, as claimed in claims 13 and 14.

As discussed above, Takeoshi fails to disclose the features of the claimed invention. That is, the present invention controls the flight speed of the functional liquid. Takeoshi fails to teach, disclose or even suggest controlling flight speed of the functional liquid. Controlling the flight speed provides the advantage of raising the manufacturing speed of the functional liquid applied substrate because, as claimed in claims 1 and 7, the impact position of the functional liquid on the substrate is not displaced even when moving the mounting table at higher speeds.

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Additionally, Takeoshi never discloses or suggests that the discharge quantity and flight speed of the functional liquid are regulated for each group by a voltage. Instead, Takeoshi regulates the discharge quantity by the pulse-width. As such, Takeoshi uses a single voltage level and therefore discharge quantity is never regulated by a voltage. As discussed in column 4, lines 8-50, Takeoshi controls the pulse-width, not voltage because an excessive voltage shortens the life of the recording head utilizing thermal energy. Accordingly, one of ordinary skill in the art would not control the voltage for uniforming the discharge quantity and such a thermal head.

For at least the reasons discussed above, Applicant respectfully submits that the applied art does not disclose all of the features recited in independent claims 1 and 7. Thus, the applied art does not render the obvious the subject matter of claims 1 and 7. Further, the applied art does not render obvious the features of claims 2-6 and 8-14 depending from claims 1 and 7. Withdrawal of the rejection of claims 1-14 under 35 U.S.C. §103 is respectfully solicited.

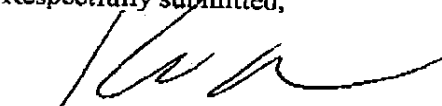
II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance are earnestly solicited.

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Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,


James A. Oliff
Registration No. 27,075

Kevin M. McKinley
Registration No. 43,794

JAO:KMM/jfb

Date: December 31, 2003

OLIFF & BERRIDGE, PLC
P.O. Box 19928
Alexandria, Virginia 22320
Telephone: (703) 836-6400

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